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12. (Amended) An optical processor according to claim 11 wherein efficiency of light transfer between a light source and a light detector for light at a wavelength that characterizes light provided by the light sources is less than a predetermined threshold efficiency ε that satisfies a relation $\varepsilon^2 \leq 4/(N^3 \times SNR)$ where N is a number of the plurality of light sources and SNR is a desired signal to noise ratio resulting from crosstalk.

13. (Amended) An optical processor according to claim 11 wherein light provided by the light sources is characterized by a first wavelength and the collecting light pipes are provided with wavelength converters that convert light received by the light pipes from the modulation zones to light characterized by a second wavelength.

15. (Amended) An optical processor according to claim 13 wherein surface areas of the light pipe are coated with a coating that transmits light at the first wavelength and is highly reflective for light at the second wavelength.

16. (Amended) An optical processor according to claim 11 wherein the collecting light pipe is a linear light pipe having two end surfaces and a light collecting surface that is a longitudinal surface region of the light pipe through which surface region light transmitted from the modulation zones in the row of modulation zones enters the light pipe.

17. (Amended) An optical processor according to claim 16 wherein the light pipe is a rectangular solid having four rectangular side surfaces, one of which side surfaces is the light collecting surface.

19. (Amended) An optical processor according to claim 17 wherein the light collecting surface is contiguous with the row of modulation zones from which the light pipe collects light.

20. (Amended) An optical processor according to claim 16 wherein the at least one light detector for a second vector component comprises a single light detector that is coupled to an end surface of the collecting light pipe.

21. (Amended) An optical processor according to claim 16 wherein the at least one light detector

comprises a light detector coupled to each end surface of the collecting light pipe.

22. (Amended) An optical processor according to claim 1 wherein the relative amounts of light provided by any two light sources of the plurality of light sources for components of the first vector having a same value are adjusted so that a difference in an amount of light transmitted from the light sources through modulation zones having a same transmittance that reaches the at least one detector for each of the modulation zones is reduced.

23. (Amended) An optical processor according to claim 1 wherein desired transmittances of modulation zones illuminated by a same light source are adjusted to compensate for differences in intensity of light along the length of the of the light source that illuminates the modulation zones.

24. (Amended) An optical processor according to claim 1 wherein a ratio of areas of any two modulation zones illuminated by a same light source is substantially inversely proportional to the relative amounts of light that the modulation zones receive from the light source.

25. (Amended) An optical processor according to claim 1 wherein the relative sensitivities of any two first and second at least one detectors are adjusted to reduce a difference in output signals that they provide when they receive light from modulation zones having a same transmittance that are illuminated by a same light source.

26. (Amended) An optical processor according to claim 1 wherein the transmittance of each modulation zone in the spatial light modulator is fixed.

27. (Amended) An optical processor according to claim 1 wherein the transmittance of each modulation zone in the spatial light modulator is controllable.

28. (Amended) An optical signal processor according to claim 1 wherein each of the at least one light sources comprises a source light pipe that provides light from a longitudinal surface thereof to illuminate modulation zones of the spatial light modulator.

32. (Amended) An optical signal processor according to claim 1 wherein the light source is formed from a material that exhibits luminescence.

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35. (Amended) An optical signal processor according to claim 1 wherein each of the at least one light source comprises a linear fluorescent light emitter.

38. (Amended) A method according to claim 36 wherein no signal is responsive to light from more than one modulation zone illuminated with light from a same light source.

39. (Amended) A method according to claim 36 wherein each light source illuminates a same number of modulation zones.

40. (Amended) A method according to claim 36 wherein each signal is substantially proportional to a total amount of light transmitted by all of the at least one of the modulation zones.

41. (Amended) A method according to claim 36 wherein each signal is responsive to light transmitted by a plurality of the modulation zones.

43. (Amended) A method of preventing cross talk between first and second light pipes optically coupled at first and second optical junctions to a same third light pipe so as to input optical signals to the third light pipe, the method comprising:

generating optical signals in the first and second light pipes that are input to the third light pipe with light characterized by a first wavelength for which light is transmitted at the first and second optical junctions;

converting the first wavelength light that enters the third light pipe to light characterized by a second wavelength that is not transmitted through the first and second optical junctions.

45. (Amended) A method according to claim 43 wherein the second wavelength light is absorbed at or in the vicinities of the first and second optical junctions.